

Chemistry 531 – Physical Chemistry I (3 cr., Fall 2023)

Wed/Thurs (12:05 – 1:20)

Fulmer 125

Instructor: Dr. Kirk A. Peterson Fulmer 102 (335-7867)
Office Hours: By appointment
Email: kipeters@wsu.edu
Class web page: <http://tyr0.chem.wsu.edu/~kipeters/Chem531/>
Required Text: None

Point Distribution:

| | |
|--------------------------|------|
| Hour Exams (2 x 275 pts) | 550 |
| Final Exam (cumulative) | 300 |
| Homework (~11 total) | 150 |
| <hr/> | |
| TOTAL | 1000 |

Grading:

850 – 1000 A
801 – 849 B+/A-
650 – 800 B
600 – 649 C+/B-
< 600 C

Topics to be covered

1. Introductions and the 1st Law of Thermodynamics
2. Entropy and the 2nd Law of Thermodynamics
3. Entropy and the 3rd Law of Thermodynamics
4. Helmholtz and Gibbs Free Energy
5. Phase Equilibria
6. Liquid-Liquid Solution Equilibria
7. Solid-Liquid and Solid-Solid Equilibria
8. Chemical Equilibria
9. Non-ideal Gases and Solutions

Homework: Homework will be assigned weekly, except for the weeks of an exam, and will consist of about 6-8 problems. Working (or struggling as the case may be) through the homework is essential for a successful (and even rewarding) passage through any PChem course and this is certainly no exception. You are encouraged to work with others on these assignments, but in the end what you hand-in to me must be your own work.

Exams: There will be two in-class hour exams and a cumulative Final. There will be no make-up exams, but if you have to miss an exam for extreme reasons beyond your control please notify the instructor as soon as possible so that special arrangements can perhaps be made.

Class Website: All homework assignments, solutions, weekly lecture topics, etc. will be posted on the class website given above.

Attendance: This is not mandatory, but this is a graduate class, so you should be self-motivated to attend every lecture. Since I will not be strictly following any textbook, lectures may be particularly important for your success in the course.

Learning Outcomes

| Student Learning Outcomes | Course Topics/Dates | Evaluation of Outcome: |
|--|--|--|
| At the end of this course, students should be able to: | The following topic(s)/dates(s) will address this outcome: | This outcome will be evaluated primarily by: |
| Define basic terms and concepts in classical thermodynamics | Throughout course | Homework and Exams |
| Use a solid foundation in chemical thermodynamics in solving practical | Weeks 1-15 | Homework and Exams |

| | | |
|-----------------------------------|--|--|
| problems in Physical Chemistry | | |
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Academic Integrity:

I encourage you to work with classmates on homework assignments. However, each student must turn in original work. No copying will be accepted (including from textbooks or homework assignments from earlier semesters)

You are responsible for reading WSU's [Academic Integrity Policy](#), which is based on [Washington State law](#). If you cheat in your work in this class you will:

- Fail the assignment, which may result in you failing the course.
- Be reported to the [Center for Community Standards](#).
- Have the right to appeal my decision.
- Not be able to drop the course or withdraw from the course until the appeals process is finished.

If you have any questions about what you can and cannot do in this course, ask me.

If you want to ask for a change in my decision about academic integrity, use [the form](#) at the [Center for Community Standards](#) website. You must submit this request within 21 calendar days of the decision."

Students are responsible for reading and understanding all university-wide policies and resources pertaining to all courses (for instance: accommodations, care resources, policies on discrimination or harassment), which can be found in the [university syllabus](#).